

Trend Study 1-14-01

Study site name: Broad Hollow.

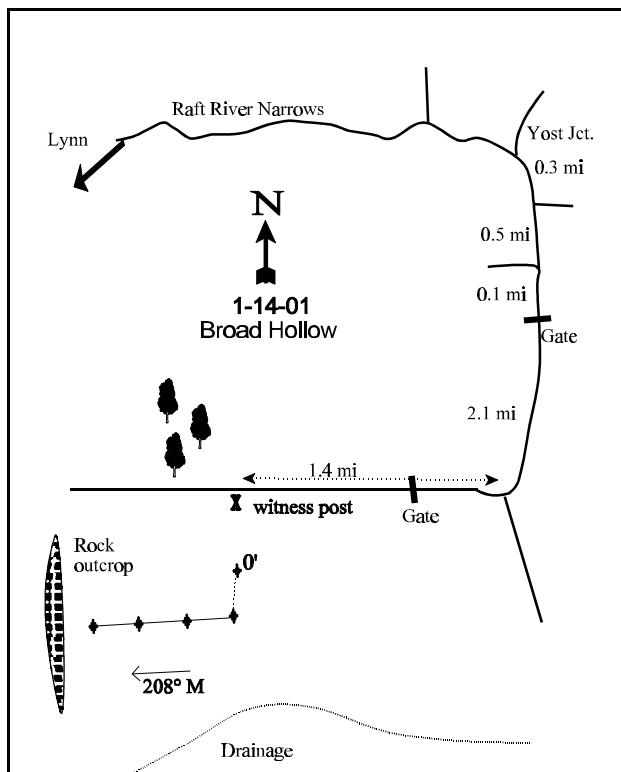
Vegetation type: Mountain Brush.

Compass bearing: frequency baseline 160 degrees magnetic.

Frequency belt placement: line 1 (11 & 95ft), line 2 (59ft), line 3 (34ft), line 4 (71ft). Rebar: belt 5 on 5 ft.

LOCATION DESCRIPTION

From the junction of U-30 and the Morris Ranch Road, proceed 29.2 miles to Yost junction, passing through Lynn and crossing the Raft River. Turn right and proceed past the creek and the cattleguard for 0.3 miles. Turn right and travel 0.45 miles and take the left fork (right fork leads to a bridge). Proceed 0.1 miles and pass through the gate, continue 1.1 miles to the Forest Service fence and sign. Continue 0.9 miles, turn right and proceed 1.4 miles to a witness post on left (road is steep, winding and rough). From the rockpile, walk five paces at a bearing of 137 degrees magnetic, to the 0-foot stake of the baseline marked by browse tag #7916. Bearing of the baseline is 160 degrees magnetic. From the 100-foot baseline stake, the baseline doglegs and runs 208 degrees magnetic.



Map Name: Buck Hollow, Utah-Idaho

Diagrammatic Sketch

Township 14N, Range 16W, Section 21

UTM 4644711 N, 277642 E

DISCUSSION

Trend Study No. 1-14

The Broad Hollow study is located at an elevation of 6,500 feet on normal or preferred winter range in upper Broad Hollow. Slope is 20% and faces southeast. Initially the browse utilization and pellet group frequency indicated that deer use was relatively intense, although depending on weather conditions, sometimes less than at the nearby Raft river Narrows location. The area is currently occupied by mixed mountain brush, however, evidence of a fire before study establishment in 1984, suggests the area once had a dispersed stand of Utah juniper. A pellet-group transect read on the site in 2001 estimated 29 deer days use/acre (71 deer days use/ha) and 11 cow days use/acre (27 cow days use/ha). One elk pellet group was also encountered.

Soil is fairly deep with an effective rooting depth of almost 16 inches. It has a sandy loam texture and a neutral soil reaction (7.2 pH). Phosphorus is marginal at 9.1 ppm where values lower than 10 ppm can limit normal plant growth and development. The soil surface is quite rocky in places. Vegetative and litter cover are adequate to protect the soil from erosion except in some of the larger shrub interspaces where bare soil can be found. Soil erosion does not currently appear to be a serious problem. The erosion condition was classified as stable in 2001.

As is typical of mountain brush types, browse composition consists of several preferred forage species. The key browse species are antelope bitterbrush, serviceberry, and mountain big sagebrush. Together, these species comprise on average 43% of the estimated browse cover. Serviceberry occurs in relatively low numbers. The average mature plant measures approximately a 4 feet in height with a 4 ½ foot crown. Utilization was extremely heavy in 1990, mostly moderate in 1996, and almost entirely light in 2001. There have been no plants classified as decadent during any reading. Bitterbrush has varied somewhat since 1984, but basically it appears stable. It has a low growing spreading growth form which sometimes makes determining density difficult. Density was estimated at 540 plants/acre in 2001, 75% of which were mature. Utilization has been mostly moderate since 1984 with heavy use ranging from 30% to 22%. Decadence has remained low and vigor good during all sampling periods. Mountain big sagebrush is the most numerous preferred species. It accounts on average for 26% of the shrub cover. Density was estimated at 2,880 plants/acre in 1996, decreasing to 1,340 plants/acre by 2001. Sagebrush use has been highly variable since 1990, but overall mostly classified as light use. Percent decadency has remained low ranging from 20% in 1990 to 5% in 1996. Annual leader growth rates for bitterbrush and sagebrush were above the norm on this site in 2001.

The most numerous browse on the site is the strong increaser, stickyleaf low rabbitbrush. It accounted for 19% of the browse cover in 1996, increasing to 24% in 2001. These shrubs show mostly light use. The population has declined in density from 7,066 plants/acre in 1984 to 4,100 by 2001. Since 1984, the population has shown a steady decline in its density.

The herbaceous understory has a diverse composition which provides substantial ground cover. Unfortunately, annual cheatgrass was the dominate species, accounting for 65% of the grass cover in 1996. During the 2001 reading, annual species have decreased to where they only make up 30% of the grass cover. The nested frequency value for cheatgrass has also significantly declined since 1996. Among perennial grasses, the most prevalent are thickspike wheatgrass and Sandberg bluegrass. Other grasses include: Indian ricegrass, bottlebrush squirreltail, bluebunch wheatgrass, needle and thread, and occasional clumps of Great Basin wildrye. Forbs are also productive and include several desirable species. Important forbs include: arrowleaf balsamroot, narrowleaf Lomatium, yampa, sulfur eriogonum, and tapertip hawksbeard. Arrowleaf balsamroot is the dominant forb, making up most of the forb cover each sampling period. Utilization of grasses and forbs is light.

1984 APPARENT TREND ASSESSMENT

Soil trend appears stable or even improving. The rate of erosion is slow and further site stabilization is likely as shrub density and cover continue to improve. Vegetatively, secondary or post-fire succession is still in progress. Vegetative cover and density are increasing and are especially noticeable within the shrub component. Two species, mountain snowberry and stickyleaf low rabbitbrush, may eventually gain a measure of dominance on the site. This would be an unfavorable development if deer winter habitat was the only thing being considered.

1990 TREND ASSESSMENT

Trend for soil is stable. Even with the substantial decrease in litter cover and a slight increase in percent bare ground. This is somewhat offset by an increase in basal vegetation cover, an increase in cryptogamic cover, and a higher sum of nested frequency for grasses. The key browse species, sagebrush, bitterbrush, and serviceberry, show evidence of moderate to heavy hedging. Vigor is good, but the populations of these shrubs all appear to be slightly decreasing. Snowberry and low rabbitbrush densities have also declined slightly. Overall, trend for browse is considered slightly down. The herbaceous understory has a high species diversity with 6 species of perennial grasses and 15 species of perennial forbs encountered. All of the grasses except squirreltail have increasing sum of nested and quadrat frequencies. Sum of nested frequency of forbs declined slightly, but they only contribute 26% of the herbaceous cover. Overall trend is up slightly.

TREND ASSESSMENT

soil - stable (3)

browse - slightly down (2)

herbaceous understory - slightly up (4)

1996 TREND ASSESSMENT

The soil trend appears slightly up due to a decline in percent bare ground and an increase in litter cover. The browse trend is also slightly up with increased densities and decreases in percent decadency for the key browse species, serviceberry, mountain big sagebrush, and antelope bitterbrush. Utilization is mostly light to moderate. Trend for the herbaceous understory is stable. Sum of nested frequency for perennial grasses declined slightly but frequency of perennial forbs increased. Annual cheatgrass continues to dominate the site but nested frequency of most perennial grasses remained stable.

TREND ASSESSMENT

soil - slightly up (4)

browse - up (5)

herbaceous understory - stable (3)

2001 TREND ASSESSMENT

The soil trend is considered stable even though the percent bare soil has increased slightly because the ratio of bare soil to protective cover has actually improved. The browse trend is slightly down with decreases in density for both sagebrush and bitterbrush with correspondingly higher percent decadency. This has come about even with lower rates of utilization. However, the effects of prolonged drought still continue. Trend for the herbaceous understory is mixed with good increases in nested frequency for perennial grasses (mostly thickspike and Sandberg bluegrass), but losses for perennial forbs offset these gains. The best event occurring on this site is that cheatgrass has decreased significantly in nested frequency since 1996. Cover of cheatgrass has also declined nearly 2 fold. Overall, the herbaceous trend is considered stable.

TREND ASSESSMENT

soil - stable (3)

browse - slightly down (2)

herbaceous understory - stable (3)

HERBACEOUS TRENDS --

Herd unit 01 , Study no: 14

T y p e	Species	Nested Frequency				Quadrat Frequency				Average Cover %	
		'84	'90	'96	'01	'84	'90	'96	'01	'96	'01
G	Agropyron dasystachyum	_a 152	_a 135	_a 131	_b 194	53	54	50	67	1.80	6.03
G	Agropyron spicatum	_{ab} 9	_a -	_b 21	_b 14	3	-	9	5	.47	.18
G	Bromus tectorum (a)	-	-	_b 363	_a 290	-	-	98	88	12.29	6.40
G	Elymus cinereus	3	-	1	1	1	-	1	1	.03	.15
G	Melica bulbosa	-	-	-	3	-	-	-	1	-	.03
G	Oryzopsis hymenoides	_{ab} 1	_{ab} 4	_b 15	_a -	1	3	6	-	.54	.01
G	Poa fendleriana	_b 27	_{ab} 20	_a 2	_a -	13	8	1	-	.00	-
G	Poa secunda	_a 55	_b 174	_b 150	_b 204	24	69	56	79	3.32	8.05
G	Sitanion hystrix	4	1	9	-	2	1	4	-	.02	-
G	Stipa comata	_{ab} 26	_b 42	_a 10	_a 16	13	21	6	6	.28	.56
G	Vulpia octoflora (a)	-	-	3	-	-	-	1	-	.00	-
Total for Annual Grasses		0	0	366	290	0	0	99	88	12.30	6.40
Total for Perennial Grasses		277	376	339	432	110	156	133	159	6.48	15.02
Total for Grasses		277	376	705	722	110	156	232	247	18.78	21.43
F	Agoseris glauca	_{bc} 39	_a 12	_c 52	_{ab} 10	17	6	22	6	.11	.03
F	Alyssum alyssoides (a)	-	-	_a 10	_b 51	-	-	4	23	.02	.26
F	Arabis spp.	_a 3	_a 4	_b 27	_a 4	2	3	11	2	.08	.03
F	Astragalus beckwithii	5	3	3	-	2	1	3	-	.18	-
F	Astragalus utahensis	-	2	-	-	-	1	-	-	-	-
F	Balsamorhiza sagittata	_a 9	_a 11	_b 35	_b 28	4	5	17	16	3.65	4.26
F	Calochortus nuttallii	-	3	-	-	-	1	-	-	-	-
F	Chaenactis douglasii	6	6	4	-	3	3	2	-	.01	-
F	Collomia linearis (a)	-	-	2	6	-	-	1	2	.00	.01
F	Comandra pallida	-	-	5	3	-	-	2	1	.01	.00
F	Collinsia parviflora (a)	-	-	_a 155	_b 221	-	-	65	76	.47	2.85
F	Crepis acuminata	_{ab} 54	_b 66	_{ab} 43	_a 39	25	29	25	18	.51	1.16
F	Cryptantha spp.	-	-	55	-	-	-	25	-	.15	-
F	Descurainia pinnata (a)	-	-	4	9	-	-	2	5	.01	.17
F	Eriogonum umbellatum	_b 12	_{ab} 7	_a 1	_a 3	8	4	1	1	.03	.03
F	Gayophytum ramosissimum (a)	-	-	1	4	-	-	1	2	.00	.01

T y p e	Species	Nested Frequency				Quadrat Frequency				Average Cover %	
		'84	'90	'96	'01	'84	'90	'96	'01	'96	'01
F	Hackelia patens	_a 3	_b 17	_{ab} 18	_{ab} 3	1	9	8	3	1.07	.07
F	Lathyrus brachycalyx	-	-	-	1	-	-	-	1	-	.00
F	Lappula occidentalis (a)	-	-	_a 10	_b 27	-	-	4	12	.02	.11
F	Lepidium spp. (a)	-	-	3	-	-	-	1	-	.00	-
F	Lomatium triternatum	3	2	-	4	1	1	-	2	-	.03
F	Machaeranthera spp	-	-	3	-	-	-	1	-	.03	-
F	Microsteris gracilis (a)	-	-	-	9	-	-	-	5	-	.02
F	Navarretia intertexta (a)	-	-	-	1	-	-	-	1	-	.00
F	Phlox hoodii	_b 5	_a 1	_a -	_a -	3	1	-	-	-	-
F	Phlox longifolia	12	5	7	3	7	2	3	2	.01	.01
F	Polygonum douglasii (a)	-	-	5	-	-	-	3	-	.01	-
F	Ranunculus testiculatus (a)	-	-	3	3	-	-	1	2	.00	.01
F	Senecio multilobatus	-	3	1	-	-	1	1	-	.15	-
F	Tragopogon dubius	_b 18	_a 3	_a -	_a 2	9	1	-	1	-	.00
Total for Annual Forbs		0	0	193	331	0	0	82	128	0.55	3.45
Total for Perennial Forbs		169	145	254	100	82	68	121	53	6.02	5.65
Total for Forbs		169	145	447	431	82	68	203	181	6.58	9.11

Values with different subscript letters are significantly different at alpha = 0.10 (annuals excluded)

BROWSE TRENDS --

Herd unit 01 , Study no: 14

T y p e	Species	Strip Frequency		Average Cover %	
		'96	'01	'96	'01
B	Amelanchier utahensis	5	11	2.00	1.87
B	Artemisia nova	0	1	-	-
B	Artemisia tridentata vaseyana	70	34	9.48	7.55
B	Chrysothamnus viscidiflorus viscidiflorus	78	78	6.49	7.71
B	Eriogonum microthecum	1	2	.03	-
B	Leptodactylon pungens	4	4	.30	.18
B	Opuntia spp.	53	58	4.37	2.50
B	Purshia tridentata	28	21	4.19	3.54
B	Symphoricarpos oreophilus	35	35	7.39	9.31
Total for Browse		274	244	34.27	32.70

BASIC COVER --

Herd unit 01 , Study no: 14

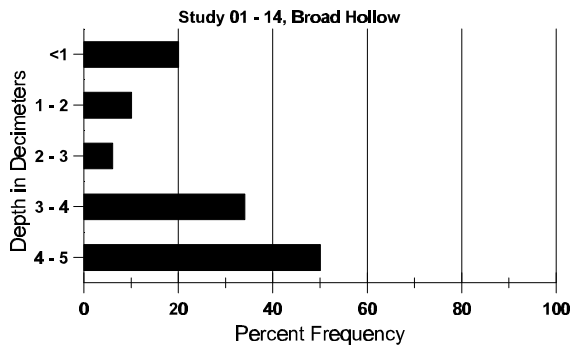
Cover Type	Nested Frequency		Average Cover %			
	'96	'01	'84	'90	'96	'01
Vegetation	377	380	2.00	13.00	49.77	56.67
Rock	85	37	7.00	6.50	2.10	1.54
Pavement	127	104	1.00	1.00	1.33	.85
Litter	398	381	62.50	46.25	62.24	50.53
Cryptogams	77	71	1.00	2.50	1.36	1.20
Bare Ground	203	183	26.50	30.75	10.75	15.88

SOIL ANALYSIS DATA --

Herd Unit 01, Study no: 14, Broad Hollow

Effective rooting depth (in)	Temp °F (depth)	PH	%sand	%silt	%clay	%OM	PPM P	PPM K	dS/m
15.52	59.0 (3.9)	7.2	63.7	19.0	17.3	1.6	9.1	121.6	.5

Stoniness Index



PELLET GROUP FREQUENCY --

Herd unit 01 , Study no: 14

Type	Quadrat Frequency		Pellet Transect	
	'96	'01	Pellet Groups per Acre '01	Days Use per Acre (ha) '01
Rabbit	17	6	26	N/A
Deer	32	17	374	29 (71)
Elk	-	-	9	1 (2)
Cattle	3	2	131	11 (27)

BROWSE CHARACTERISTICS --

Herd unit 01 , Study no: 14

A G R E	Y R E	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Amelanchier utahensis																		
S	84	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	96	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	01	7	-	-	-	-	-	-	-	-	7	-	-	-	140		7	
Y	84	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	96	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	01	10	-	-	2	-	-	-	-	-	12	-	-	-	240		12	
M	84	-	2	-	-	-	-	-	-	-	2	-	-	-	133	31	32	2
	90	-	-	1	-	-	-	-	-	-	-	-	1	-	66	33	28	1
	96	1	4	-	-	-	-	-	-	-	5	-	-	-	100	43	62	5
	01	3	1	-	-	-	-	1	-	-	5	-	-	-	100	50	55	5
X	84	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	96	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	01	-	-	-	-	-	-	-	-	-	-	-	-	20			1	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'84		100%			00%			00%			-50%							
'90		00%			100%			100%			+34%							
'96		80%			00%			00%			+71%							
'01		06%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'84	133	Dec:	-			
												'90	66		-			
												'96	100		-			
												'01	340		-			
Artemisia nova																		
Y	84	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	96	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	01	3	-	-	-	-	-	-	-	-	3	-	-	-	60		3	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'84		00%			00%			00%										
'90		00%			00%			00%										
'96		00%			00%			00%										
'01		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'84	0	Dec:	-			
												'90	0		-			
												'96	0		-			
												'01	60		-			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Artemisia tridentata vaseyana																		
S	84	8	3	-	-	-	-	-	-	-	11	-	-	-	733		11	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	7	-	-	-	-	-	-	-	-	7	-	-	-	140		7	
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
Y	84	5	5	-	-	-	-	-	-	-	10	-	-	-	666		10	
	90	3	3	2	1	-	-	-	-	-	9	-	-	-	600		9	
	96	27	-	-	-	-	-	-	-	-	27	-	-	-	540		27	
	01	7	1	-	1	-	-	-	-	-	9	-	-	-	180		9	
M	84	5	5	1	-	-	-	-	-	-	11	-	-	-	733	14	19	
	90	3	3	1	-	-	-	-	-	-	7	-	-	-	466	16	17	
	96	94	12	-	2	2	-	-	-	-	110	-	-	-	2200	21	32	
	01	43	3	2	-	-	-	2	-	-	50	-	-	-	1000	22	33	
D	84	-	1	-	-	-	-	-	-	-	1	-	-	-	66		1	
	90	3	1	-	-	-	-	-	-	-	3	1	-	-	266		4	
	96	7	-	-	-	-	-	-	-	-	7	-	-	-	140		7	
	01	6	2	-	-	-	-	-	-	-	4	1	-	3	160		8	
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	220		11	
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	840		42	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'84		50%			05%			00%			- 9%							
'90		35%			15%			00%			+54%							
'96		10%			00%			00%			-53%							
'01		09%			03%			04%										
Total Plants/Acre (excluding Dead & Seedlings)												'84	1465	Dec:	5%			
												'90	1332		20%			
												'96	2880		5%			
												'01	1340		12%			
Chrysothamnus nauseosus consimilis																		
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0	21	30	
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0	31	43	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'84		00%			00%			00%										
'90		00%			00%			00%										
'96		00%			00%			00%										
'01		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'84	0	Dec:	-			
												'90	0		-			
												'96	0		-			
												'01	0		-			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Chrysothamnus viscidiflorus viscidiflorus																		
S	84	9	-	-	-	-	-	-	-	-	9	-	-	-	600		9	
	90	1	-	-	-	-	-	-	-	-	1	-	-	-	66		1	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
Y	84	18	-	-	-	-	-	-	-	-	18	-	-	-	1200		18	
	90	6	4	3	3	-	-	-	-	-	16	-	-	-	1066		16	
	96	27	-	-	7	-	-	-	-	-	34	-	-	-	680		34	
	01	5	-	-	-	-	-	-	-	-	5	-	-	-	100		5	
M	84	60	13	-	-	-	-	-	-	-	69	-	-	4	4866	17	26	73
	90	19	8	-	4	-	-	-	-	-	29	-	1	1	2066	16	14	31
	96	176	1	-	10	5	-	-	-	-	192	-	-	-	3840	16	22	192
	01	183	-	-	7	-	-	-	-	-	190	-	-	-	3800	14	19	190
D	84	11	4	-	-	-	-	-	-	-	11	-	-	4	1000		15	
	90	32	3	2	-	-	-	-	-	-	35	-	-	2	2466		37	
	96	5	4	-	-	-	-	-	-	-	9	-	-	-	180		9	
	01	10	-	-	-	-	-	-	-	-	10	-	-	-	200		10	
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	40		2	
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	120		6	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'84		16%			00%			08%			-21%							
'90		18%			06%			05%			-16%							
'96		04%			00%			00%			-13%							
'01		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'84	7066	Dec:	14%			
												'90	5598		44%			
												'96	4700		4%			
												'01	4100		5%			
Eriogonum microthecum																		
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20	5	9	1
	01	3	-	-	-	-	-	-	-	-	3	-	-	-	60	9	14	3
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'84		00%			00%			00%										
'90		00%			00%			00%										
'96		00%			00%			00%			+67%							
'01		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'84	0	Dec:	-			
												'90	0		-			
												'96	20		-			
												'01	60		-			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Leptodactylon pungens																		
Y	84	3	-	-	-	-	-	-	-	-	3	-	-	-	200		3	
	90	1	-	-	-	-	-	-	-	-	1	-	-	-	66		1	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
M	84	10	-	-	-	-	-	-	-	-	10	-	-	-	666	10 12	10	
	90	6	-	-	2	-	-	-	-	-	8	-	-	-	533	5 9	8	
	96	7	-	-	-	-	-	-	-	-	7	-	-	-	140	11 13	7	
	01	6	-	-	-	-	-	-	-	-	6	-	-	-	120	8 9	6	
D	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	1	-	-	-	-	-	-	-	-	-	-	1	-	66		1	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'84		00%			00%			00%			-23%							
'90		00%			00%			10%			-79%							
'96		00%			00%			00%			-14%							
'01		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'84	866	Dec:	0%			
												'90	665		10%			
												'96	140		0%			
												'01	120		0%			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.	Total
		1	2	3	4	5	6	7	8	9	1	2	3	4			
Opuntia spp.																	
Y	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	90	9	-	-	-	-	-	-	-	-	-	-	-	-	600		9
	96	8	-	-	-	-	-	-	-	-	-	-	-	-	160		8
	01	19	-	-	5	-	-	7	-	-	31	-	-	-	620		31
M	84	15	-	-	-	-	-	-	-	-	15	-	-	-	1000	3 8	15
	90	14	-	-	4	-	-	-	-	-	14	-	4	-	1200	4 17	18
	96	97	-	-	9	-	-	-	-	-	106	-	-	-	2120	4 17	106
	01	81	-	-	4	-	-	84	-	-	169	-	-	-	3380	4 13	169
D	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	90	1	-	-	-	-	-	-	-	-	-	-	1	-	66		1
	96	11	-	-	1	-	-	-	-	-	7	-	-	5	240		12
	01	16	-	-	1	-	-	-	-	-	5	-	-	12	340		17
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	40		2
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>						
		'84			00%			00%			+46%						
		'90			00%			00%			+26%						
		'96			00%			00%			+42%						
		'01			00%			00%									
Total Plants/Acre (excluding Dead & Seedlings)												'84	1000	Dec:	0%		
												'90	1866		4%		
												'96	2520		10%		
												'01	4340		8%		

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Purshia tridentata																		
S	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	1	-	-	-	-	-	-	-	-	1	-	-	-	66		1	
	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
Y	84	-	4	-	-	-	-	-	-	-	4	-	-	-	266		4	
	90	1	3	-	-	-	-	-	-	-	4	-	-	-	266		4	
	96	5	-	-	-	-	-	-	-	-	5	-	-	-	100		5	
	01	2	1	-	-	-	-	1	-	-	4	-	-	-	80		4	
M	84	-	4	4	-	-	-	-	-	-	8	-	-	-	533	20 31	8	
	90	-	2	3	-	-	-	-	-	-	5	-	-	-	333	19 20	5	
	96	14	14	10	1	-	-	-	-	-	39	-	-	-	780	23 43	39	
	01	3	10	4	-	1	2	-	-	-	20	-	-	-	400	24 53	20	
D	84	-	-	-	3	-	-	-	-	-	2	-	-	1	200		3	
	90	-	1	-	-	-	-	-	-	-	1	-	-	-	66		1	
	96	-	-	1	-	-	-	-	-	-	1	-	-	-	20		1	
	01	-	3	-	-	-	-	-	-	-	1	-	-	2	60		3	
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	20		1	
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	100		5	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'84		53%			27%			07%			-33%							
'90		60%			30%			00%			+26%							
'96		31%			24%			00%			-40%							
'01		56%			22%			07%										
Total Plants/Acre (excluding Dead & Seedlings)												'84	999	Dec:	20%			
												'90	665		10%			
												'96	900		2%			
												'01	540		11%			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Symphoricarpos oreophilus																		
S	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	1	-	-	-	-	-	-	-	-	-	1	-	-	66		1	
	96	3	-	-	-	-	-	-	-	-	-	3	-	-	60		3	
	01	4	-	-	-	-	-	-	-	-	-	4	-	-	80		4	
Y	84	11	-	-	-	-	-	-	-	-	11	-	-	-	733		11	
	90	2	1	1	-	-	-	-	-	-	4	-	-	-	266		4	
	96	12	-	-	-	-	-	-	-	-	12	-	-	-	240		12	
	01	21	-	-	1	-	-	-	-	-	22	-	-	-	440		22	
M	84	20	7	-	-	-	-	-	-	-	27	-	-	-	1800	23	23	
	90	13	-	-	4	-	-	-	-	-	17	-	-	-	1133	19	29	
	96	56	-	-	-	-	-	-	-	-	56	-	-	-	1120	27	47	
	01	69	-	-	-	-	-	-	-	-	69	-	-	-	1380	26	45	
D	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	6	-	-	-	-	-	-	-	-	5	-	-	1	400		6	
	96	1	2	-	-	-	-	-	-	-	2	-	-	1	60		3	
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'84		18%			00%			00%			-29%							
'90		04%			04%			04%			-21%							
'96		03%			00%			01%			+22%							
'01		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'84	2533	Dec:		0%		
												'90	1799			22%		
												'96	1420			4%		
												'01	1820			0%		
Tetradymia canescens																		
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0	14	36	
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0	17	35	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'84		00%			00%			00%										
'90		00%			00%			00%										
'96		00%			00%			00%										
'01		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'84	0	Dec:		-		
												'90	0			-		
												'96	0			-		
												'01	0			-		